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ABSTRACT

This paper examines a phenomenon in the Setswana language whereby certain affixes, when combining with the verbal base, adjust their positions and forms according to phonological rules that can be termed "imbrication." D. T. Cole, among others, made a fair attempt at a morphological identification of these realizations, but did not go further into the phonological motivations of the process. The type "/j/" (y) alternants are examined and an explanation of the variant "-itse" of the perfect morpheme "-ile" and of the variant "-ets-" of the applicative morpheme "-el" is given. (MDM)

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THE IMBRICATION OF SUFFIXES IN SETSWANA

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by

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Abstract

This paper attempts to examine, in the Setswana Language, a phenomenon whereby certain affixes when combining with the verbal base adjust their positions and forms according to phonological rules that can be termed "imbrication"[1] *. D. T. Cole (among others), made a fair attempt at a morphological identification of these realisations, but did not go further into the phonological motivations of the process. We shall look into the type "/j/" (y) alternants and endeavour to give an explanation of the variant -"itse" of the perfect morpheme "-ile" /-iDe/ (the symbol D represents an archiphoneme for /l/ and /d/) and of the variant "-ets-" of the applicative morpheme "-el" /eD/. There are other affixal processes which are mainly affixal compounding, and as such have nothing to do with imbrication.*

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The Setswana verbal lexeme, as in other Bantu languages, is characterised by verbal extensions which constitute a systematic affixation (addition of specialised morphemes at the end of the verbal base) according to the diathesis (or the voice - a syntactic relation between the subject and the object of a grammatical structure which assigns to it a value). Setswana possesses quite a number of extensions (suffixes), some of which have no longer any evident semantic value; they have become fixed and fossilised to the verbal base. A quick look at them will give a clearer idea of their morphology and semantic and syntactic role: -el-, Applicative/applied; -is-, Causative/factive; -eg-, -al-, i(n), -eseg-, -agal-, Middle-voice/neuter; -(i)w-, Passive and; -an-Reciprocative/Reciprocal. The -ol-, Reversive and the -ak- Extensive/Intensive do not arise from the diathesis.

[1] Y. Bastin: "La finale verbale -ide et l'imbrication en bantou". (Musée Royal de l'Afrique Centrale, 1983) Tervuren, Belgium.
Though Bastin did not deal with the Sotho-Tswana languages to which Setswana belongs, the phonological evidence from Setswana is striking.

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These affixal morphemes can combine within a single verbal base. When one examines the possibility of affixal combination, one observes that some combinations can be made only in one order, others are possible in two different orders, but with a difference in meaning. The order can therefore be conditioned by the "semantic field", the "morphological insertion", and the "phonological infixation and imbrication"[2] . In this combining of affixes there is a certain order which is more or less fixed. A hypothesis can be posited[3] :

BASE+{inversive-intensive-causative-middle voice-applicative-passive}+FINALE

The reciprocal seems to be relatively mobile in derivation:

lw-a (fight)
→ lw-**an**-a (fight against each other)
→ lw-**an**-tsh-a (make to fight each other)
→ lw-**an**-tsh-**an**-a (make each other fight one another)

In this order of affixal combination, there can be saturation and incompatibilities caused by the meaning. There can also occur phonological readjustments (imbrication).

It is admitted in Bantu grammars that a primitive verbal base bears a lexeme and a finale and a derived base bears a lexeme, one or more extensions, and a finale. The verbal base if ever it is reduced to the minimum, always bears the finale. The finale which is always vocalic, constitutes a distinct morpheme. In fact this finale varies in the diversity of verbal conjugation and can take the forms <<-a>> (in infinitives and positive forms of various tenses); <<-e>> (in negative and subjunctive forms); <<-i>> (in certain negative and perfect forms) and; <<-o>> (in certain negative, perfect, and subjunctive forms). The verbal base whether primitive or derived can also take the perfect suffix which together with the causative suffix are involved in what we are going to analyse here.

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[2] A. Chebanne: "Etudes constrative des constructions verbales en tswana et en fraçais". (PhD thesis, Université Stendhal-Grenoble III, 1991), Page 263.
The thesis citations are inspired by Larry M. Hayman's (1990) paper: "Conceptual issues in the comparative study of the Bantu verb stem". paper read at the 21st ACAL

[3] A. Chebanne, ibid., page 264

The notion of imbrication:

To understand the problem tackled here, we must first show that the suffixes of the perfect stems liDel (-ile) and liel (-ie) have the particularity of appearing in a discontinuous form due to the rule of imbrication.

Imbrication operates in an evident manner when the verbal base bears the passive morpheme, which in the perfect appears inserted in the form -w- between two segments which constitute in an undissociated manner the morpheme of the perfect:

-reka "buy" ⇒ perfect base: rek-ile

⇓

passive derivative: ⇒ perfect base
-rek-w-a of the passive: rek-il-w-e

Even if the concept of "discontinuous morpheme" is not universally accepted, in such a case it seems difficult not to admit that morphemes can be constituted by two fragments that are susceptible to be found dissociated by the imbrication rule.

At the level of notions, the dash having been already used to signify the "limit of morphemes", to avoid any ambiguity, it is the dot which will be conventionally used to indicate at the structural level the limit between two segments of a morpheme susceptible to appear in a discontinuous form. One will then explain the perfect base of the passive derivative -rek-a as follows:

-rek-w-ile → rek-il-w-e (imbrication)

In a similar manner, -bon-a "see" has a perfect base boŋ-i (structural form bon-i.e), and its passive derivative bon-w-a has a perfect base boŋ-w-i, which can then be explained in the following way:

bon-o-le → bon-i-o-e (imbrication)
→ boŋ-o-e
→ boŋ-w-i

To be really rigorous, one must write the imbrication rule at the level of presentation where the morphemes are designated in semantic and syntactic terms and have not yet received a phonological form, to take into account the fact that an ultimate choice of allomorphes is in any case posterior to the application of the imbrication rule. For an example:

psv-pft1.pft2 → pft1-psv-pft2,

where psv signifies "passive extension", pft1 "first fragment of the perfect finale" and pft2 "second fragment of the perfect finale".

The variant -itse of the perfect finale and the variant -ets- of the causative extension:

There exists in Setswana a set of verbal bases which take what seems to be at first sight a particular finale of the perfect, -itse. It is important to note that the choice of this variant is not an isolated case: for verbal bases which select this variant of the perfect finale, the applicative extension, generally realised -el-, takes a form -ets- which as it can be noted coincides with the form taken by this same applicative extension in contact with the perfect finale liel; finally, the combination of the applicative extension and the perfect finale takes with these same verbal bases the form -ed-itse.

The set of the bases which select these variants of the perfect finale and of the applicative extension includes in particular the totality of the verbal bases bearing a causative extension immediately before the finale, and it may be suspected that the verbs that belong to this set without being synchronically identifiable as causative must be frozen ancient causatives.

For example:

-rek-a "buy" ⇒ perfect base: -rek-ile
⇒ applicative derivative: -rek-el-a
⇓ perfect base of the appl. deriv.: -rek-ets-i
+ causative:
-rek-is-a "sell" ⇒ perfect base: -rek-is-itse

⇓

+ applicative:

-rek-is-ets-a ⇒ perfect base: -rek-is-ed-itse

"sell for/to somebody"

For the verbal bases bearing the variant -is- of the causative extension, the explanation is not obvious. But for the causative derivatives[4] the solution comes from the fact that the combining of the causative extension or the finale of the perfect have generally the effect of re-establishing the non muted final consonant of the lexeme.

For example:

ɬɬal-a "be filled"	⇒ perfect base: (-tlad-ile*)[5]
⇓	ɬɬets-ɬ
	⇒ applicative derivative: - ɬɬal-el-a
⇓	perfect base of the applic.: -ɬɬal-ets-ɬ
+ causative	
-ɬɬats-a "fill"	⇒ perfect base: ɬɬad-itse
⇓	
+ applicative	
-ɬɬal-ets-a "fill for someone"	⇒ perf. base of the causative: ɬɬal-ed-itse

In fact the mechanical combining of the perfect finale to the causative derivatives would give incorrect forms like: tlats-ile; tlats-el-a; tlats-itse.

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4 The causative derivatives of the Tswana verb characterise themselves in most cases by a suffix -is-. But a certain number of verbal bases whose final consonant is f, l, n; or X, no segment can be isolated in realisation as representing the causative morpheme, and the formation of the causative derivative turns out to be a substitution of tsh for f, of ts for l, of for n and s for χ; if the preceding vowel is ɛ or ɔ, it becomes e or o respectively:

nonof-a (be capable) => nonotsh-a

ɬɬal-a (be filled) => ɬɬats-a

tsεn-a (come in) => tseŋ-a

xorox-a (arrive) => xoros-a

The modification undergone by the vowel of the 4th aperture and the fact that l and n are modified exactly as in contact with the perfect finale which is structurally liel lead to attributing to this morpheme of the causative the structural form lil.

The following rule suffices to account for these modifications $x \rightarrow \emptyset$ / ...V +cor. V .

5 This form though grammatical in some Setswana dialects, is rather common with young Setswana speakers.

Now, taking into account the realisation rules that have already been established and the analysis proposed here above of causatives in lil[6] , one can admit that:

-tɬètse	represents	tɬaiD-ic
-tɬáts-a	represents	tɬaD-i-a
-tɬád-its	represents	tɬaD-iD-i-e
-tɬál-ets-a	represents	tɬaD-eD-i-a
-tɬál-ed-its	represents	tɬaD-eD-iD-i-e

It can be seen that these alternants, complex at first sight, can be explained simply from the structural forms leDl (-el-) for the applicative extension and liDel (-ile) for the finale of the perfect, on condition that it is admitted that the morpheme of the causative lil undergoes rules that displace it to the right of the applicative extension and inserts it between the two fragments of the perfect finale:

tɬáD-i-iDe → tɬáD-iD-i-e (imbrication)
→ tɬáD-its-i-e (L → ts / ... V+cor.V)
→ tɬáD-its-e (V+cor. → ø / C ... V)
(tladitse)[7]

tɬáD-i-ɛD-a → tɬáD-ɛD-i-a (permutation)
→ tɬáD-eD-i-a (ɛ → e / ... X Vap. 1-3)
→ tɬáD-ets-i-a (D → ts / ... V+cor. V)
→ tɬáD-ets-a (V+cor. → ø / C ... V)
(tlaletsa)

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6 It can even be thought that this rule is part of rules which are generally valid for describing the l type of alternances. and that only the lexical accident or lack of data makes it to be only encountered in the causative derivation:
example: xɔrɔx-i-a → xorox-i-a (ɔ → o / x V ap..1-3)
→ xoros-i-a (x → s / ..V +cor..)
→ xoros-a (V+cor.. → ø / C....V)
NB: symbols and phonological concepts are inspired by the research of D. Creissels in his notes; Phonologie du tswana, 1991.

7 NB. the allophones d and l are better represented in phonology by /D/ their archiphoneme. /l/ appears before /a/, /o/, /ɔ/, /e/ wowels; and /d/ before /l/ and /u/.

ʰháD-i-ɛD-ìD.e → ʰháD-ɛD-ìD-i-e (imbrication)
→ ʰháD-eD-ìD-i-e (ɛ → e / ... X Vap. 1-3)
→ ʰháD-eD-its-i-e (D → ts / ...V+cor. V)
→ ʰháD-eD-its-e (V+cor. → ø / C ... V)
(tlaleditse)

If the same verbal base accumulates causative, applicative and passive affixes, (meaning, "having been the one for who it was filled"), we have a double imbrication in the perfect: ʰhál-ed-its-w-e, which can be explained in the following manner:

ʰháD-i-ɛD-o-ìD.e → ʰháD-ɛD-ìD-i-o-e (double imbrication)
→ ʰháD-eD-ìD-i-o-e (ɛ → e / ... X Vap. 1-3)
→ ʰháD-eD-its-i-o-e (D → ts / ...V+cor. V)
→ ʰháD-eD-its-o-e (V+cor. → ø / C ... V)
→ ʰháD-eD-its-w-e (V-cor.→ w /... a or V+cor.)
(tlaleditswe)

According to Creissels[8] the same explanations are valid for verbal bases which can be suspected to be from ancient causatives, but which are no longer felt as such by speakers of the language and which are difficult if not impossible to identify as derivatives without going out of the synchronic description framework. For example:

-bóts-a (to question) ⇒ perfect base: -bód-itse
⇓
applicative derivative
-ból-ets-a (to question for) ⇒ perfect base: -ból-ed-itse

The solution which imposes itself is to consider that the lexeme "to question" is structurally lbɑD.i, that is, it is susceptible of appearing in two fragments; the second fragment, though it can no longer be isolated as a morpheme, has in regard to suffixes that can join themselves to this lexeme the same properties of displacement as -i-, the causative morpheme.

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[8] D. Creissels: "Phonologie du tswana", (Personal notes, Université Stendhal-Grenoble III,1991), Chapter XIV,page 11.

The Analysis of the Causative morpheme -is-:

We have seen from the above examples that the bases that comprise the variant -is- of the causative extension have also the property to select the variant -itse of the perfect finale as well as the variant -ets- of the applicative extension. The only way not to see a pure and simple irregularity (which would be much less satisfying) consists of analysing this suffix in a similar way that has just been suggested for the lexeme like -bóts-.

When one takes into account this procedure, the most economic and coherent way to account for the morphologic properties of the forms such as -rék-is-a "sell" is to consider that structurally, the morpheme which precedes the finale is lis.il.

Creissels (1991/1992) has shown that "s" does not undergo the alternances of the ljl type. Cole (1955) has also not raised the transformation of "s". It can also be shown that "i" in an immediate context of C...V can be dropped leaving as a trace an eventual modification of the consonant in question. Therefore if it occurs that the inclusion of an "i" in the structural form of this morpheme allows to account for some of these particularities, there is no reason to reject this hypothesis, since elsewhere it can be easily explained why it disappears more often without leaving a trace.

The structural form lis.il permits one to forecast that the "i" that is postulated here as the second fragment of the causative morpheme generally realised "-is-" is manifested only in the case where the imbrication rule displaces it into a context where it can exercise its action on a consonant. For instance -rék-is-itse, perfect base of -rék-is-a, rék-is-ets-a, applicative derivative of rék-is-a and rék-is-ed-itse, perfect base of -rék-is-ets-a can be explained in the following way:

rék-is.i-lD.e	→ rék-is-lD-i-e	(imbrication)
	→ rék-is-lD-i-e	(ɛ → e /...X V aperture 1-3)
	→ rék-is-its-i-e	(L → ts / ...V+coronary vowel)
	→ rék-is-its-e	(V+cor. → ø / C ... V)

rék-ls.l-ɛD -a → rék-ls-ɛD -l-a (imbrication)
→ rék-ls-eD -l-a (ɛ → e / ... X V ap 1-3)
→ rék-ls-ets-l-a (L → ts / ... V+cor. V)
→ rék-ls-ets-a (V+cor. → ø / C ... V)

rék-ls.l-ɛD -lD.e → rék-ls-ɛD -lD -l-e (imbrication)
→ rék-ls-eD -lD -l-e (ɛ → e / ...X Vap 1-3)
→ rék-ls-eD -lts-l-e (D → ts / ... V+cor. V)
→ rék-ls-eD -lts-e (V+cor. → ø / C ... V)
(rekiseditse)

The conclusion that can be made from this observation is that the Setswana language has not, as as it may be thought at first sight, two causative morphemes which are totally different: there is fundamentally one morpheme lil which for some verbs is extended with lis.il, without one actually in the present state of the language being able to isolate as a morpheme the first morpheme lisl of this discontinuous morpheme.

In recapitulation, we may argue that it is prudent to consider that the rules which account for the imbrication of discontinuous morphemes are not rules of realisation operating on units already provided with a phonological form, but rather rules which operate at the level of representation where the structure appears like a chain of abstract lexical and grammatical units to which a phonological form has not yet been attributed.

In such a representation, two grammatical units of Setswana appear as a chain of two fragments:

- perfect → pft1 + pft2 (perfect positive finale)
- causative → (caus1) + caus2 (causative derivative)[9]

9 In the case of the causative derivative, the brackets mean that, according to the base to which this unit attaches itself, it can bear the two fragments lisl and lil or limits itself to the second. As for the perfect positive finale always bears two fragments which can be analysed as liDl and lel

We may add to these units a certain number of lexemes which morphologically bear two fragments, the second being identifiable to causative 2, in spite of the fact that these lexemes are not identifiable as derivatives according to criteria that are generally used. And then, "psv" referring to the passive extension and "appl" designating the applicative extension, the following permutation rules will be expressed, to be applied in the indicated order to result in the imbrications observed at the surface:

- caus 2 + appl → appl + caus 2
- psv + pft1 → pft1 + psv
- caus 2 + pft1 → pft1 + caus 2

The notion of imbrication has perhaps a very small part in the phonology of the Setswana language, but the fact that it is still a synchronically active phenomenon as evidenced in our short presentation, warrants it a mention in the various studies undertaken on the language.

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